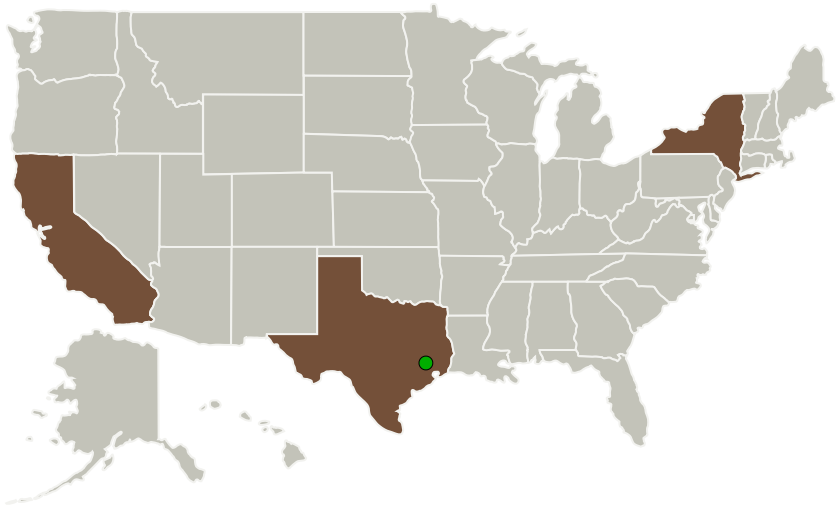
Portable High Sensitivity and High Resolution Sensor to Determine Oxygen Purity Levels, Phase I

Completed Technology Project (2011 - 2012)

Project Introduction

The objective of this Phase I STTR project is to develop a highly sensitive oxygen (O2) sensor, with high accuracy and precision, to determine purity levels of high concentration (> 99%) O2 gas streams. This sensor will meet NASA applications for on-orbit O2 purity checks in portable life support systems (PLSS) and during in situ O2 production activities. InnoSense LLC (ISL) will utilize its proprietary Chemical Fingerprint (TM) sensor array fabrication technology in this project coupled with the combinatorial analysis and high throughput sensor evaluation capabilities of the STTR partner. In Phase I, ISL will engineer a working model and demonstrate NASA use potential of the technology. Upon fine-tuning various parameters in Phase II, the system performance will be tested with a prototype hardware. For assuring success of this project, ISL has assembled a technical team with a cumulative 90 person-years of experience in developing commercially viable sensor systems.

Primary U.S. Work Locations and Key Partners



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Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
Innosense, LLC	Lead Organization	Industry Minority-Owned Business, Small Disadvantaged Business (SDB), Women-Owned Small Business (WOSB)	Torrance, California
Johnson Space Center(JSC)	Supporting Organization	NASA Center	Houston, Texas
Research Foundation for the State University of New York(RFSUNY)	Supporting Organization	Academia	Stony Brook, New York

Primary U.S. Work Locations	
California	New York
Texas	

Project Transitions

February 2011: Project Start

February 2012: Closed out

Closeout Documentation:

- Final Summary Chart*(https://techport.nasa.gov/file/138416)*

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Innosense, LLC

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

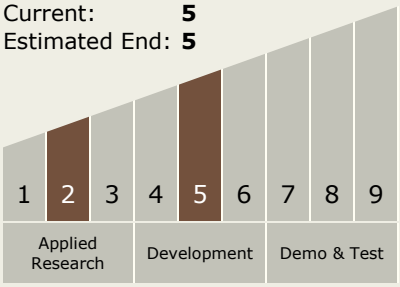
Carlos Torrez

Principal Investigator:

Uma Sampathkumaran

Technology Maturity (TRL)

Start: **2**
Current: **5**
Estimated End: **5**



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Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.2 Launch Vehicle Propellant

Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System